

Operating System and Teleprocessing Interfaces

The following changes/enhancements to operating-system interfaces and teleprocessing-system interfaces are provided with Natural 4.1:

- Natural for VSE/ESA
 - Natural for BS2000/OSD
 - Natural Com-plete/SMARTS Interface
 - Natural IMS/TM Interface
 - Natural CICS Interface
 - Natural CICS Interface and Natural UTM Interface
 - Support of New 64-Bit Architecture
 - Improved Abend and Error Handling
 - Natural Roll Server
 - Authorized Services Manager
 - SMARTS Print/Work File Support
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Natural for VSE/ESA

Natural Version 4.1 offers VSE library support for all input, print and work files for batch Natural under VSE/ESA.

Natural for BS2000/OSD

- New Keyword Parameters
- Changed Keyword Parameter

New Keyword Parameters

The following keyword parameters have been added to the macro ADDON and the programs CMPSTART and PREFRESH:

Keyword Parameter	Purpose	Used in:
LOAD=BIND/ASHARE	Defines the method for loading a module into a common memory pool.	ADDON, CMPSTART and PREFRESH
JV=YES/NO	Controls via a Job Variable whether a global common memory pool is successfully enabled.	CMPSTART
JVSUFx=xxxxxxxx	Suffix of the Job Variable name.	CMPSTART

Changed Keyword Parameter

The keyword parameter REQMLLOC now applies to the generation of both the front-end and reentrant parts of the BS2000/OSD batch and TIAM drivers.

Natural Com-plete/SMARTS Interface

- New Functionality
- Generation Parameter Changes
- Change in Installation

New Functionality

- Natural Version 4.1 supports Com-plete Version 6 SMARTS/HTTP server environments.
- Full support of native SMARTS environment (APS Runtime).
- The local editor buffer pool server routine has been enhanced. It features new error message handling, changed initialisation und termination handling as well as a command interface.
- The new DLL NCFBTIO enables Natural to use the SMARTS Portable File System (PFS) as well as native datasets as a container for batch IO. It is activated with parameter TTYPE=BTCH or with the terminal command %T=BTCH when Natural is running in a SMARTS Server environment.
- The Natural Com-plete/SMARTS Interface is a Software AG product with a new product code NCF.

In the Natural Com-plete/SMARTS Interface, the following Natural Com-plete error messages have been replaced by Natural error messages:

Natural Com-plete Error Messages	Replaced by Natural Error Message
NCF0001	NAT9915
NCF0002	NAT9907
NCF0003	NAT9996
NCF0004	NAT9981
NCF0005	NAT9986
NCF0006	NAT9980
NCF0007	NAT9991
NCF0008	NAT9909
NCF0009	NAT9996

Generation Parameter Changes

The old macro NCMCFPRM has been replaced with a new macro NFMPRM.

The following macro parameters have been dropped:

Macro Parameter	Purpose
ADDBUF	Size of additional IO buffer
CRELO	Defines the table of resident page programs which are relocatable.
EDITWRK	Specifies parameters for editor work files to be able to use the Software AG Editor.
NUCRELC	Specifies whether a nucleus relocation check takes place or not.

Instead of the dropped parameter EDITWRK, you can use the Natural profile parameter EDBP to set the relevant parameters. The new Natural Server in Com-plete NCFNAT41 uses the buffer pool sizes from the Natural profile parameter BPI.

The following macro parameter is new:

Macro Parameter	Purpose
SERVER	Defines the name of the Natural server which is initialized during Com-plete startup.

Change in Installation

In the Com-plete installation, the link process for the front-end part and for the Natural Server has been changed. The Natural Com-plete modules, sources and macros are delivered in new separate libraries instead of in Natural standard libraries.

Natural IMS/TM Interface

- New Functionality
- Error Codes Replaced by Natural Error Messages

New Functionality

- Support of user written and language-specific LE condition handlers in case of abends.
- Support of customer-specific subpool number for all working storage requests.
- Reintroduction of the TRNCODE parameter that allows you to define a logical transaction code which is used by the BMP, NTRD and SRVD drivers.
- Optional elimination of thread relocation to support Con-form.
- Support of logical NSB names defined in the transaction code table NIITRTAB.
- Support of Natural Access Method AM=STD by the NTRD and SRVD drivers
- Support of special values *WTO, *MTO and *PRINT nn for the SENDER destination used by the NTRD and SRVD drivers.
- Default alternate TP PCB number in the NIMTRNTG macro that is used by the service modules CMQUEUE, CMQUEUEEX and NIIDQUMS.
- Support of a customer-specific alternate TP PCB number in the service modules CMQUEUE, CMQUEUEEX and NIIDQUMS.
- Support of multiple Natural/IMS servers in the same MPP.

Error Codes Replaced by Natural Error Messages

In the Natural IMS/TM Interface, the following Natural IMS/TM interface error codes have been replaced by Natural error messages:

Natural IMS/TM Error Code	Replaced by Natural Error Message
3504	NAT9996
3514	NAT9902
3615	NAT9903
3616	NAT9904
3617	NAT9986
3628	NAT9974

In addition, the following changes were made:

Natural IMS/TM Error Code	Replaced by
3622	an NUS message corresponding to the return code.
3660	an NUS message corresponding to the return code.

The error codes in the section "Natural IMS/TM Error Codes" in the Natural Messages and Codes documentation have been removed accordingly.

Natural CICS Interface

- New Functionality
- Generation Parameter Changes
- Change in Installation

New Functionality

- In addition to work files under CICS, the Natural CICS Access Method now also supports print files under CICS.
- Natural as a Server is now also supported in a CICS environment.
- Natural parameter logging is supported in Natural under CICS, that is, the PLOG parameter is honored now.

Generation Parameter Changes

NCMDIR macro in NCISCPCB:

The following macro parameters have been dropped:

Macro Parameter	Purpose/Reason
CDATE	These parameters are obsolete, because only High Level Assembler is supported now.
CTIME	
ROLLFLS	Maximum Number of VSAM Roll Files Now a maximum of 9 VSAM roll files is always taken.
SWPSIZE	Swap Pool Size The specification of the Natural swap pool under CICS is now done using the NTBPI generation macro within NATPARM or the profile parameter BPI; in addition to the swap pool size, also a swap pool cache size and a swap pool name may be specified in that way.

The following macro parameter has been changed:

Macro Parameter	Purpose/Reason
CICSPLX	Switching of CICS Application Region This parameter is now available with new parameter values.

The following macro parameter is new:

Macro Parameter	Purpose/Reason
SIPSERV	Authorized Services Manager's Session Information Pool This parameter is now available for SIP server usage.

NCMPRM macro in NCIPARM:

The following macro parameters have been dropped:

Macro Parameter	Purpose/Reason
ASA	Use ASA Control Characters For Natural Message Logging Now NCI determines internally whether ASA control characters for the NCI message log destination have to be provided or not.
CDATE	These parameters are obsolete, because only High Level Assembler is supported now.
CTIME	

The following macro parameter in the macro NCMPRM has been changed:

Macro Parameter	Purpose/Reason
FLDLN	Supply Field Length List On External Program Call Two sub-parameters are available now.

The following macro parameters are new:

Macro Parameter	Purpose/Reason
DUPTID	Handle Duplicate Terminal ID
MSGPFX	Generate NCI Message Prefix for WTL Messages
UNITID	Establish Unique Terminal IDs

Change in Installation

The Natural CICS interface programs hold all CICS commands in unexpanded form, that is, all CICS commands require a pre-compile step. If you are not using the most recent CICS version, the pre-compile step may result in a non-zero return code because of CICS commands used that are unknown to your preprocessor; however, the subsequent assemble step skips the flagged CICS commands using conditional assembly.

Natural CICS Interface and Natural UTM Interface

New Keyword Subparameters for Macro NTSWPRM

It is possible to define ESA Data Space in addition to a Swap Pool (which, under BS2000/OSD, is a "global" swap pool). For swap pool definition, new keyword subparameters have been added to the macro NTSWPRM.

Keyword Parameter	Purpose
DSPCONT= <i>nn</i>	Minutes for Data Space slot controlling.
DSPLIFE= <i>nn</i>	Lifetime (minutes) of a thread in the ESA Data Space.
SWPFILE=FNAT/FUSER	System file definition for the swap pool initialization parameters.

Support of New 64-Bit Architecture

Under the z/OS operating system, Natural 4.1 supports IBM's new 64-bit architecture. This applies to the Natural roll server (for cache), the Natural Authorized Services Manager (ASM) (for cache), and the buffer pool (e.g., for server Natural under OS/390), all of which at present use data spaces as local cache. With Version 4.1, you are able to choose between data spaces and memory objects to be used as local cache for these parts of Natural.

Improved Abend and Error Handling

A new profile parameter DUE and a new terminal command %DUE have been provided to enable the generation of a snap dump whenever a specific Natural error occurs. This will facilitate error diagnosis, as it will not require the application of so-called "trap Zaps".

A new setting DU=ABEND has been provided to produce a memory dump with the original abend reason code at session termination. For DU=ON a non-zero reason code is displayed by termination message NAT9974 after the abend code.

In a case of an abend, the part of the Natural Buffer Pool holding the Natural object that is currently executed and the corresponding directory is always included in the dump.

LE/370 is supported also for VSE/ESA and CICS.

The LE abend handling has been improved. New error messages NAT0950 and NAT9967 inform about conditions that could not be handled by Natural. Additional diagnose information is printed depending on the LE runtime option TERMTHDACT.

Natural Roll Server

The Roll Server is now contained in a single module, NATRSM41. This module incorporates all necessary subtasks that were shipped in separate modules with Version 3.1. The former user exits NATRSUX1 and NATRSUX2 have been renamed to NATRSU14 and NATRSU24, respectively. The parameter list for NATRSU14 has been expanded to include information about total number of slots and number of slots in use for each roll file. Please refer to Roll Server User Exits in the section Natural Roll Server Operation of the Natural Operations for Mainframes documentation.

The roll file formatting routine, NATRSRFL, now has a new function, FORMAT, that has a simpler parameter structure than the former CINIT function, see Natural Roll Server Operation of the Natural Operations for Mainframes documentation.

Authorized Services Manager

The Authorized Services Manager is now contained in a single module named NATASM41. This module must be linked with the module NATBPMGR at the customer site, see Installation Procedure under OS/390.

A special module, NATAU31B is provided for IMS customers who wish to use the Natural IMS/TM Interface Version 4.1 together with the Natural IMS/TM Interface Version 2.3 in the same IMS/TM MPP environment, see Migration Hints in the section General Information of these Release Notes.

SMARTS Print/Work File Support

The Software AG Multi-Architecture Runtime System (SMARTS) offers an operating system interface common for all supported platforms. Beside the necessary features for server environments (Multi-Tasking, resource locking), it also supports access to a portable file system and printer support.

This offers the possibility to enable print and work file access for Natural servers running under SMARTS. This is of particular importance for the Natural Development Server (NDV) to allow an NDV client to test programs even if they contain print/work file access.